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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/067,858

02/08/2002

Shigeo Kittaka

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7590

11/16/2004

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EXAMINER

STOCK JR, GORDON J

ART UNIT

PAPER NUMBER

2877

DATE MAILED: 11/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/067,858

Applicant(s)

KITTAKA ET AL.

Examiner

Gordon J Stock

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3 is/are allowed.
- 6) ☒ Claim(s) 1,2,4,6 and 7 is/are rejected.
- 7) ☒ Claim(s) 5 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION***Specification***

1. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the phrases, “ h_4 , h_6 , h_8 , . . . as variables” and “ h_4 , h_6 , h_8 , . . . are determined” of claims 3 and 5 lack antecedent basis for the disclosure states that h_4 , h_6 , h_8 are used as variables and are determined and does not mention the orders higher than h_8 as suggested by the ellipsis (page 12, lines 3-5; page 13, lines 5-6; page 15, lines 15-20). Corrections are required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1-2** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Yamamoto et al. (JP 55044949 A)** in view of **Baba (RE 33,227)** and **Kittaka (5,949,585)**.

As for **claims 1-2**, Yamamoto in a measurement of refractive index distribution of cylindrical lens having refractive index gradient discloses the following: processing said rod lens so that an optic-axial length of said rod lens is approximately equal to $P/2$ or an integer multiple of $P/2$ (table of page 13); setting a patterned surface as an object in the proximity of one end surface and forming an image surface by irradiating surface with condensed monochromatic light (lines 1-6 of constitution; Fig. 7); obtaining the paraxial focal point and the curve of

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curvature of field by observing said image surface and calculating back higher-order distribution coefficients by a fitting process (equations 1-9 of pages 1-2; Figs. 1-6); wherein pattern is lattice structure comprising stripes and positions of focal points on a plurality of lines from a center of said lens are measured to obtain curves of curvature field of meridional image surface with distances from optical axis (13 of Fig. 7; Figs. 1-6). A plurality of h_4 is calculated (table of page 13). However, Yamamoto appears to be silent concerning calculating back higher order coefficients with a fit. Kittaka in an optics using graded-index lens teaches that higher order coefficients comprise the refractive index distribution (col. 3, lines 30-35). And Baba in a gradient index type single lens teaches higher order coefficients comprise the refractive index distribution (col. 3, lines 10-15). Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made that Yamamoto calculates back higher order distribution coefficients, a plurality of h_4 , with a fit, for the refractive index distribution for a cylindrical lens comprises higher order coefficients than h_4 and thereby, the higher order coefficients than h_4 in Yamamoto's fitting equation are set equal to zero.

4. **Claims 4, 6, 7** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Yamamoto et al. (JP 55044949 A)**.

As for **claims 4, 6, and 7**, Yamamoto discloses the following: a light source (11 of Fig. 7); a microscope (15 of Fig. 7); a predetermined pattern (13 of Fig. 7); a CCD, a television camera (16 of Fig. 7); a display unit (17 of Fig. 7). As for a movable stage, the arrows near 13 of Fig. 7 suggest that the pattern is movable in an up and down motion. A movable stage is a preferred support for moving something in two directions. Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to have the apparatus comprise a

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movable stage for the pattern, for the pattern can move in two directions, up and down. As for a linear gauge, the scale to the right of the microscope suggests a gauge. Distance values are needed for the calculations (Figs. 1-6). Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to have a linear gauge to measure stage pattern movement since the pattern moves in two directions, and for precise refractive index distribution measurements precise distance measurements would be used. As for a computer and storage unit, Yamamoto is silent. However, computers are well-known in the art for processing data and for being coupled to measurement systems to process data acquired as well as having storage media such as disks, tapes, etc. for storing gathered data. Therefore, it would be obvious to one of ordinary skill in the art at the time the invention was made to have a computer with a storage unit coupled to the system in order to gather, process, and store data measured.

Allowable Subject Matter

5. **Claim 3** is allowed.

Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As to **claim 3**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a method of determining higher-order index distribution coefficients distribution coefficients "using the higher-order index distribution coefficients h_4 , h_6 , h_8 , . . . as variables" and h_4 , h_6 , h_8 , . . . are determined, in combination with the rest of the limitations of **claim 3**.

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As to **claim 5**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in a measuring apparatus for obtaining higher order index distribution coefficient “using the higher-order index distribution coefficients “using the higher-order index distribution coefficients h_4, h_6, h_8, \dots as variables” and h_4, h_6, h_8, \dots are determined,” in combination with the rest of the limitations of **claim 5**.

Response to Arguments

6. Applicant's arguments filed September 7, 2004 in regards to the objections to the specification in view of claims 3 and 5 have been fully considered but they are not persuasive. Specifically, the disclosure does not mention the use of the coefficients higher than h_8 as suggested by the ellipsis (which Examiner interprets as ‘to h_N ’) as variables or determining the coefficients. The disclosure solely mentions the use of and the determination of the following: h_4, h_6, h_8 .

As for the arguments in regards to the rejections of claims 3 and 5, they are found persuasive. And therefore, the rejections of claims 3 and 5 under 35 U.S.C. 103(a) and 112 second paragraph and 101 (for claim 5 only) have been withdrawn. However, the arguments in regards to the rejections under 35 U.S.C. 103(a) of claims 1-2, 4, 6, 7 have not been found persuasive. Specifically, in regards to claim 1, step 4 does not preclude just calculating a plurality of h_4 coefficients as in **Yamamoto et al. (JP 55044949 A)** (table of page 13), for the limitation states “**calculating back higher-order index distribution coefficients**” rather than --calculating back the higher-order index distribution coefficients--; as for **claims 4, 6, 7**, the preamble of claim 4 recites ‘higher order index distribution coefficient’ and that recitation has not been given patentable weight because it has been held that a preamble is denied the effect

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of a limitation where the claim following the preamble is a self-contained description of the structure not depending for completeness upon the introductory clause. *Kropa v. Robie*, 88 USPQ 478 (CCPA 1951). In addition, in claims 6 and 7, the limitation of the calculation of the “higher order index distribution coefficient” does not preclude solely calculating a higher order coefficient such as h_4 as in Yamamoto.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Fax/Telephone Numbers

If the applicant wishes to send a fax dealing with either a proposed amendment or a discussion with a phone interview, then the fax should:

1) Contain either a statement “DRAFT” or “PROPOSED AMENDMENT” on the fax cover sheet; and

2) Should be unsigned by the attorney or agent.

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This will ensure that it will not be entered into the case and will be forwarded to the examiner as quickly as possible.

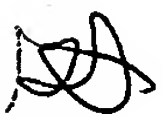
Papers related to the application may be submitted to Group 2800 by Fax transmission. Papers should be faxed to Group 2800 via the PTO Fax machine located in Crystal Plaza 4. The form of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CP4 Fax Machine number is: (703) 872-9306

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gordon J. Stock whose telephone number is (571) 272-2431.

The examiner can normally be reached on Monday-Friday, 10:00 a.m. - 6:30 p.m.

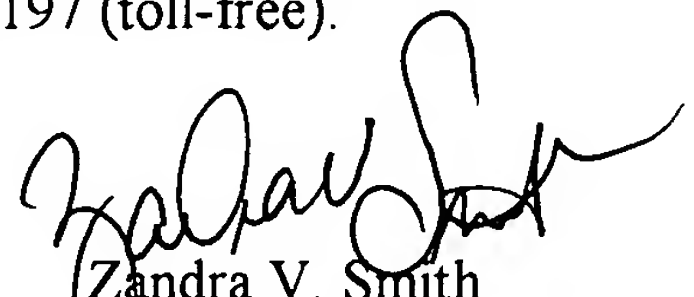
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr., can be reached at 571-272-2800 ext 77.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private Pair system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



gs

November 8, 2004



Zandra V. Smith
Primary Examiner
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